

# DICHOTOMOUS KEY FOR THE BATS OF UTAH

Authored by: Chris Witt, Adam Kozlowski, and George Oliver

Figures by: Adam Kozlowski

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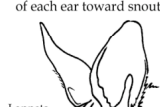

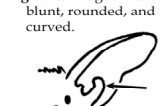

FIGURE	STEP	DIAGNOSTIC
<p><b>Figure 1:</b> Tail extends &gt;5 mm beyond uropatagium.</p> 	1	<p>a. Tail extends beyond rear edge of uropatagium (interfemoral membrane) by more than 5 mm [Figure 1]. <b>GO TO: 2 FAMILY: Molossidae</b></p> <p>b. Tail does not extend beyond rear edge of uropatagium or only slightly (<math>\leq 5</math> mm) [Figure 2]. <b>GO TO: 3 FAMILY: Vespertilionidae</b></p>
<p><b>Figure 2:</b> Tail does not extend more than 5 mm beyond uropatagium.</p> 	2	<p>a. Ears do not join at the base, small bumps are present along the ear's front edge. Ears barely extend past the snout when laid forward. Tail generally does not extend &gt;25 mm past interfemoral membrane; usually extends ~19 mm. Fur is generally uni-colored, darkish gray/brown, species often exudes strong, musty odor. <b>BRAZILIAN FREE-TAILED BAT (<i>Tadarida brasiliensis</i>)</b></p> <p>b. Ears join at the base, small bumps along the front edges of the ear are not present [Figure 3]. Ears extend well beyond the snout when laid forward. Tail generally extends at least 25 mm past interfemoral membrane. Fur is bi-colored, almost white at its base, distal color ranges from reddish-brown to black. <b>BIG FREE-TAILED BAT (<i>Nyctinomops macrotis</i>)</b></p>
<p><b>Figure 3:</b> Small bumps present along leading edge of ears.</p> 	3	<p>a. Ears longer than 25 mm [Figure 4]. <b>GO TO: 4</b></p> <p>b. Ears shorter than 25 mm. <b>GO TO: 7</b></p>
<p><b>Figure 4:</b> Ear length is measured from notch to tip.</p> 	4	<p>a. Three conspicuous white spots present on back, one on each shoulder and one on lower back; [Figure 5]. Ears are pink. <b>SPOTTED BAT (<i>Euderma maculatum</i>)</b></p> <p>b. Three dorsal spots not present. <b>GO TO: 5</b></p>
<p><b>Figure 5:</b> Spotted bat's dorsal markings.</p> 	5	<p>a. Ears clearly separated at base; dorsal pelage is light brown to yellow, hairs lighter at base. <b>PALLID BAT (<i>Antrozous pallidus</i>)</b></p> <p>b. Ears joined at base. <b>GO TO: 6</b></p>
<p><b>Figure 6:</b> Lappets, flaps of skin, extending from base of each ear toward snout.</p> 	6	<p>a. Each ear has lappet (flap of skin) near its base anteriorly, which extends forward toward snout [Figure 6]. Muzzle does not have well-defined dermal glands [Figure 7]. <b>ALLEN'S BIG-EARED BAT (<i>Idionycteris phyllotis</i>)</b></p> <p>b. Ears do not have basal lappets (flaps of skin) extending anteriorly. Muzzle does have a well-defined pair dermal glands. <b>TOWNSEND'S BIG-EARED BAT (<i>Corynorhinus townsendii</i>)</b></p>
<p><b>Figure 7:</b> Muzzle with well defined dermal glands.</p> 	7	<p>a. Uropatagium (interfemoral membrane) heavily furred dorsally. <b>GO TO: 8</b></p> <p>b. Uropatagium (interfemoral membrane) not heavily furred dorsally. <b>GO TO: 10</b></p>
<p><b>Figure 8:</b> Tragus is short, blunt, rounded, and curved.</p> 	8	<p>a. Weight is generally greater than 20 g; Light colored ears distinctly edged in black. Dorsal pelage pale yellow/brown at base, black/dark brown in middle and white/cream at tip. <b>HOARY BAT (<i>Lasiurus cinereus</i>)</b></p> <p>b. Weight is generally less than 20 g. Dorsal pelage is not pale yellow/brown at base, black/dark brown in middle and white/cream at tip. <b>GO TO: 9</b></p>
<p><b>Figure 9:</b> Tragus is long, pointed, and straight.</p> 	9	<p>a. Fur color is dark brown to black with silver/white tips, giving a frosted appearance. <b>SILVERED-HAIRED BAT (<i>Lasionycteris noctivagans</i>)</b></p> <p>b. Fur color is not dark brown to black with silver/white tips, rather it is brick red to rust on upperparts with pale undersides. <b>WESTERN RED BAT (<i>Lasiurus blossevillei</i>)</b></p>
	10	<p>a. Tragus short (&lt;6 mm), blunt, rounded, and curved [Figure 8]. <b>GO TO: 11</b></p> <p>b. Tragus long (&gt;6 mm), pointed, and straight [Figure 9]. <b>GO TO: 12</b></p>

Figure 10: Uropatagium has conspicuous fringe of hairs on its posterior edge.



Figure 11: Underside of wing has long, dense fur extending outward from body.



Figure 12: Calcar keel not present or poorly developed.

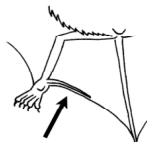


Figure 13: Calcar keel is present and well developed.

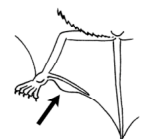
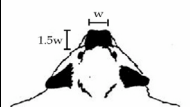


Figure 14: Naked part of snout top is as wide (w) as it is long (square).



Figure 15: Naked part of snout top is 1.5X the nostril width (rectangular).



- 11 a. Forearm >40 mm (42 – 52); ears extend outward; mass greater than 11 g.

**BIG BROWN BAT** (*Eptesicus fuscus*)

- b. Forearm <40 mm (28 – 33); mass less than 11 g.

**WESTERN PIPISTRELLE** (*Pipistrellus hesperus*)

- 12 a. Ears blackish and extend 4mm or more past end of snout when pressed forward.

**LONG-EARED MYOTIS** (*Myotis evotis*)

- b. Ears extend less than 4 mm past end of snout when pressed forward.

**GO TO: 13**

- 13 a. Uropatagium (interfemoral membrane) has conspicuous fringe of hairs on its posterior edge; [Figure 10]. Fringe often accompanied by lighter skin pigmentation on uropatagium's trailing edge.

**FRINGED MYOTIS** (*Myotis thysanodes*)

- b. Uropatagium (interfemoral membrane) does not have conspicuous fringe of hairs (but may be very sparsely haired).

**GO TO: 14**

- 14 a. Underside of wing has long, dense fur extending outward from body to a line between elbow and knee [Figure 11]. Tibia is  $\geq 2.5X$  the length of the hind foot.

**LONG-LEGGED MYOTIS** (*Myotis volans*)

- b. Underside of wing does not have long, dense fur between elbow and knee.

**GO TO: 15**

- 15 a. Calcar keel is not well developed or is absent [Figure 12].

**GO TO: 16**

- b. Calcar keel is present and well developed [Figure 13].

**GO TO: 17**

- 16 a. Fur of dorsal region is dull.

Forearm is generally less than 36 mm.

No keel on calcar.

Skull rises more abruptly from snout.

Ventral hairs black at base, light cream at tips.

**YUMA MYOTIS** (*Myotis yumanensis*)

- b. Fur of dorsal region is glossy and long, longest dorsal hairs ~10 mm.

Forearm length 34 – 41mm.

May have poorly developed keel on calcar.

Snout to skull transition gradual.

Hairs on toes project beyond claws.

**LITTLE BROWN MYOTIS** (*Myotis lucifugus*)

- 17 a. Naked part of snout top is as wide as it is long (square) [Figure 14].

Tail does not extend beyond uropatagium.

Forehead rises steeply and abruptly from rostrum.

Face, ears, and wings are not black and do not contrast sharply with pelage color.

**CALIFORNIA MYOTIS** (*Myotis californicus*)

- b. Naked part of snout top is 1.5X the nostril width (rectangular) [Figure 15].

Tail often extends 1.5-2.5 mm beyond uropatagium.

Forehead rises gradually from rostrum.

Face, ears, and wings are black, often contrasting sharply with pale pelage.

**WESTERN SMALL-FOOTED MYOTIS** (*Myotis ciliolabrum*)

#### CHARACTERS USEFUL IN DISTINGUISHING UTAH'S SPECIES OF MYOTIS

Species	Body Mass (g)	Forearm (mm)	Ear (mm)	Keel on Calcar	Special Characteristics
<i>californicus</i>	3 – 6	29 – 36	9 – 15	Well developed	See step 17 to differentiate.
<i>ciliolabrum</i>	4 – 6	30 – 36	13 – 21	Well developed	See step 17 to differentiate.
<i>yumanensis</i>	4 – 7	32 – 36	12 – 15	None	See step 16 to differentiate.
<i>lucifugus</i>	5 – 7	34 – 41	11 – 15	None	See step 16 to differentiate.
<i>evotis</i>	5 – 8	37 – 40	20 – 24	Poor	Ear length is distinctive among <i>Myotis</i> .
<i>thysanodes</i>	5 – 7	39 – 46	16 – 20	Poor to None	Short, dense hairs on trailing edge of tail.
<i>volans</i>	6 – 10	37 – 42	10 – 15	Well developed	Fur on wing between elbow and knee. Tibia is $\geq 2.5X$ the length of the hind foot.